Space Weather Forecast

Issued on Wednesday, 10 April 2024 at 13:17 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Increasing chance of Moderate or greater solar activity during the period.

Analysis of Space Weather Activity over past 24 hours.

Solar Activity: Solar activity has remained Low, with a few low-level Common-class flares in the period. There are four sunspot regions on the visible disc. The largest of these lies in the northwest, with a large main spot and continued slight proliferation of minor, mixed polarity spots to the north of the main spot. Another spot region located in the northeast has displayed some growth with opposite-polarity spots forming to the rear of the leading spot. The remaining regions are relatively simple and inactive.

The current facing side is heavily populated by 'filaments' (arcs of plasma) - perhaps rendered more durable by the lack of flares to de-stabilise them. Despite this no Earth-directed Coronal Mass Ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: Solar wind parameters were indicative of an ongoing minor coronal hole influence. Solar wind speeds increased were at slightly elevated levels, generally between 400-450 km/s, with a peak of 486 km/s observed at 09/1919 UTC. The Total Interplanetary Magnetic Field strength was Weak to Moderate, with the important north-south direction varying weakly.

Resultant Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low or Very Low activity is expected at first. Activity will potentially increase in the coming days with the return of multiple Ex-sunspot regions over the eastern solar horizon, with a greater chance of Moderate or higher activity.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs feature in the forecast. Minor coronal hole influences are expected through Days 1-3 (10-12 Apr) with speeds persisting at slightly elevated levels at first before easing to normal background. A further enhancement is possible late on Day 4 (13 Apr), but carries low confidence regarding timings and geomagnetic effects.

Geomagnetic activity is expected to be Quiet to Unsettled with a chance of isolated Active intervals early on Day 1 (10 Apr). Mainly Quiet activity is then expected through much of, if not the remainder of the period, increasing to become Unsettled to Active should any high-speed stream arrive late on Day 4 (13 Apr).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office Space Weather Forecast

Energetic Particles / Solar Radiation: Solar radiation storms are considered very unlikely during the period given the lack of appropriate active sunspot regions on the disc.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	15	40	40
Very Active	R3 to R5 X	No	1	1	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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